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(54) **THRESHOLD ADDRESSING OF ELECTROPHORETIC DISPLAYS**

(75) Inventors: **Craig A. Herb**, Medford, MA (US); **Ian D. Morrison**, Acton, MA (US); **Andrew L. Loxley**, Somerville, MA (US)

(73) Assignee: **E Ink Corporation**, Cambridge, MA (US)

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(52) **U.S. Cl.** **345/107**; 345/84; 345/85
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Primary Examiner—Vijay Shankar
Assistant Examiner—Prabodh M. Dharia
(74) *Attorney, Agent, or Firm*—Testa, Hurwitz & Thibeault, LLP

(57) **ABSTRACT**

Methods and apparatus for an electrophoretic display in which the particle motion is a controlled, non-linear function of the applied electric field. Threshold addressing allows simple, inexpensive passive addressing techniques to be employed. The inverse electrorheological gating techniques allow the construction of a full color, passively addressed display without the need to address individual capsules. A mixture of capsules is coated randomly onto a substrate enabling the creation of inexpensive displays. All the techniques allow a significant threshold to be realized. Rapid movement of the pigment particles above the threshold allows rapid switching times for the display. Since diffusion and gravity are extremely weak forces compared to the yield stresses created, the structured or gelled medium approach provides a great improvement in the bistability of the displays.

16 Claims, 7 Drawing Sheets